



CORE JAVA

JDK 1.8 New Features

- ✚ Java 8 Interface default method
- ✚ Java 8 Interface static Method
- ✚ Java 8 Functional Interface
- ✚ Java 8 Functional Interface Examples
- ✚ Java 8 Lambda Expression
- ✚ Java 8 for Each () Method
- ✚ Java 8 Stream API
- ✚ Java 8 Collection

Important Features of Java

- ✚ History of Java
- ✚ Important Features of Java
- ✚ JVM Architecture
- ✚ JDK 1.8, JRE and JVM
- ✚ Java Keywords
- ✚ Simple Hello World Program
- ✚ Java Flow Control
- ✚ Source File
- ✚ Class and Objects
- ✚ Data Types
 - Primitive Data Types
 - Non – Primitive Data Types
- ✚ Constructor
- ✚ Packages
- ✚ Instance & Static Variable
- ✚ Static Block
- ✚ Has-A Relation (secondary Reference)
- ✚ Setter and Getter
- ✚ Method return type (primitive type and class type)



Object Oriented Programming (OOPS)

- + Inheritance (IS-A)
- + Constructor and Inheritance
- + Inheritance with parent reference and Child constructor
- + Covariant Return Types
- + Inheritance and type casting
- + This/Super Keyword
- + Polymorphism
- + Method Overloading
- + Constructor Overloading
- + Compile time Polymorphism
- + Overloading and Narrowing Concept
- + Method Overriding
- + @override Annotation
- + Overriding and to String () method
- + Abstraction
- + Abstract class
- + Interface
- + Marker Interface
- + Interface and Multiple Inheritance
- + Interface Uses and Benefit with example
- + Difference of Interface and Abstract class
- + Encapsulation
- + Access Modifier
- + Data Hiding
- + Protected Access Modifier Implementation

Project on OPP'S Concept

Exception Handling

- + Exception Handling:
 - o What and Why? (Try, Catch, Finally, Throw, Throws, Try with Resources)
- + Try and catch block
- + Multiple catch blocks
- + Nested try



- ✚ Finally block
- ✚ Finally block with return statement
- ✚ Throw keyword
- ✚ Exception Propagation
- ✚ Throws keyword
- ✚ Throws keyword with Method Overriding
- ✚ Throws keyword with Constructor
- ✚ Custom Exception
- ✚ Throw keyword and Custom Exception
- ✚ JDK 1.7 Feature Auto-Closeable Interface
- ✚ JDK 1.7 Feature try with Resources

String Handling

- ✚ String: What and Why?
- ✚ Immutable String
- ✚ Methods of String class
- ✚ Creating Immutable class

Collection Framework

- ✚ Java Collection
- ✚ Java List
 - Array List
 - Vector
 - Linked List
- ✚ Nested List
- ✚ List and Sorting
- ✚ List and Duplicate
 - Java Set
 - HashSet
 - Tree Set
 - Linked HashSet
 - Nested Set
- ✚ Java Map
 - HashMap
 - Linked Hash Map
 - Weak Hash Map



- ✚ Cursors
- ✚ Iterator
- ✚ List Iterator
- ✚ Enumeration
- ✚ Java Collections (Utility Class)
- ✚ Comparable & Comparator
- ✚ Custom Sorting
- ✚ Difference in Comparable and Comparator
- ✚ Collection and Generics

Project on Collection Framework

Multithreading

- ✚ Introduction
- ✚ Extends Thread Class
- ✚ Implementing Runnable interface and Callable interface
- ✚ Demon Thread & Non-Demon Thread
- ✚ Inter Thread Communication (Producer-Consumer)
- ✚ Thread Methods (sleep, join, yield etc.)

Synchronization

- ✚ Synchronization: What and Why?
- ✚ Synchronized method
- ✚ Synchronized block
- ✚ Static synchronization

Input and Output

- ✚ File
- ✚ File Writer & File Reader
- ✚ Buffered Writer
- ✚ Buffered Reader
- ✚ Input from keyboard by Console
- ✚ Input from keyboard by Scanner Class
- ✚ Print Writer class
- ✚ Reading and Writing data simultaneously



JDBC API

- + What is JDBC Drivers
- + Steps to connect to the database
- + Connectivity with Oracle
- + Connectivity with MySQL
- + Driver Manager
- + Connection Interface
- + Statement Interface
- + Prepared Statement
- + Statement
- + Prepared Statement
- + Callable Statement
- + CRUD Operations

Project on JDBC

Logic Building

- + Operator
- + Java ternary operator
- + If, else
- + If, If else
- + Switch statement
- + Conditional Related Problem
- + Looping Control
- + Java for loop
- + Java while loop
- + Java do while loop
- + Java break Statement
- + Java continue statement
- + Looping Related Problems
- + Array
- + Array Related Problem
- + Numeric Logical Problems
- + String Logical Problems (String Palindrome, Duplicate Removal)
- + Sorting Problems
- + Searching Problems
- + File Related Logical Problems



SQL

- + Database Introduction
- + SQL Introduction
- + MYSQL Introduction
- + MYSQL Installation
- + MYSQL Workbench Installation
- + Features
- + Data Types
- + DDL, DML, TCL
- + Create Table
- + Select Statement
- + Insert into Query
- + Delete Query
- + Update Query
- + DISTINCT Clause
- + WHERE Clause
- + ORDER BY Clause
- + GROUP BY Clause
- + SQL JOINS
- + SQL Outer Join
- + SQL Inner Join
- + SQL Left Join
- + SQL Right Join
- + SQL Full Join
- + Stored Procedure



Full Stack & Advance Framework

Hibernate 5.X

- + Introduction
- + ORM (Object Relational Mapping)
- + Advantage of ORM
- + ORM Tools List
- + Hibernate architecture
- + JPA
- + Hibernate with JPA
- + Installation and Directory Structure
- + Hibernate Advantages over JDBC
- + Hibernate and Annotation
- + Hibernate Configuration File
- + Hibernate with Java Based (Zero XML file)
- + Hibernate Utility file
- + Load and get method difference
- + save, server Update, persist method
- + Inheritance in Hibernate (IS-A)
- + Hibernate Mapping (Has-A)
 - o One-To-One
 - o One-To-Many
 - o Many-To-One
 - o Many-To-Many
- + Hibernate Query Language (HQL)
- + Hibernate Annotations
- + Caching in Hibernate
 - o First Level Cache
 - o Second Level Cache
- + Scalar queries
 - o Native SQL
 - o Criteria Builder
 - o Name Queries
 - o Procedures
- + Criteria Builder
- + Hibernate Transaction Management
- + CRUD Operations

Project on Hibernate



SPRING FRAMEWORK

SPRING IOC

- + What is Spring
- + Spring Modules
- + What is IOC
- + Spring IOC Container
- + Bean Factory/Core Container
- + Application Context/Advance /J2EE Container
- + Spring Bean life Cycle
 - o Bean Scope
 - o Singleton Scope
 - o Prototype Scope
- + Lazy and Eagar Loading Concept
- + Scope Combination
- + Dependency Injection
 - o Setter Based
 - o Constructor Based
- + Spring IOC Container
- + Setter Based XML & Java Based
 - o Primitive and Secondary
- + Constructor Based XML & Java Based: -
 - o Primitive and Secondary
- + Autowiring
 - o By Name
 - o By Type
 - o Constructor
 - o Autodetect
 - o None

Spring Web MVC:

- + Spring MVC
- + Features of Web MVC
- + Life Cycle of Web MVC
- + Execution Flow of MVC
 - o Create the Request and view Pages
 - o Create Controller



- + Configure Dispatcher Servlet
- + Configure view Resolver
- + Stereotype Annotation in MVC
 - @ Component
 - @ Controller
 - @ Service
 - @ Repository
- + Spring MVC
 - @ Request Mapping
 - @ Request Param
 - @ Path Variable Handler Mapping Controller Class
- + View Resolvers
- + Spring Hibernate Integration (XML and Java Based)

Project on Spring MVC

Spring Boot

- + Spring Boot Introduction
- + Spring Boot Features
- + Advantages Over Spring Web MVC
- + Creating Spring Boot Application Using Maven
- + Using Spring Initializer (<http://start.spring.io/>)
 - Using Spring STS IDE
- + Removal of XML Files
- + Simple Application Using Spring Boot
- + Spring Boot Starters
- + Spring Boot Application Annotation
- + Spring Application Class
- + Spring Boot Actuator.
- + Embaded Servlet containers
- + Spring Boot Profiles
 - DEV
 - PROD
 - UAT
- + Spring Boot with Data JPA (CRUD Repository)



CJC

Complete Java Classes

Spring Data JPA:

- ✚ What is Spring Boot JPA?
- ✚ JPA Annotations
- ✚ Curd Repository
- ✚ JPA Repository
- ✚ Custom Queries
- ✚ Using Method Name
- ✚ JPA Named Queries
- ✚ @Query Annotation

Project on Spring Boot



FRONTEND

HTML5

- + Introduction
- + Basic Formatting Tags
- + Grouping Using Div Span
- + Lists
- + Images
- + Hyperlink
- + Table
- + Iframe
- + Form
- + Headers
- + Miscellaneous etc.

CSS2:

- + Introduction
- + Syntax
- + Selectors
- + Color Background Cursor
- + Text Fonts
- + Lists Tables
- + Box Model
- + Display Positioning
- + Floats

JavaScript:

- + Introduction JS in HTML
- + HTML DOM (Document Object Model)
- + JS Console
- + JS Debugging
- + JS Var & Arrays
- + JS Objects & Functions
- + JS Dialog Boxes
- + JS JSON
- + HTML Attributes etc.